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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/473,571
Filing Date: December 28, 1999
Appellant(s): WOLRICH ET AL.

MAILED

JAN 17 2007

Technology Center 2100

Robert A. Greenberg Reg. No. 44,133
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/12/2006 appealing from the Office action mailed 11/30/2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

09/475614 and 09/626535

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

GROUNDS OF REJECTION NOT ON REVIEW

The following grounds of rejection have not been withdrawn by the examiner, but they are not under review on appeal because they have not been presented for review in the appellant's brief.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld (5592622) in view of Chilton (6418488) in further view of Witkowski (6430626) in further view of Williams et al. (6144669) (hereinafter Williams).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld (5592622) in view of Chilton (6418488) in further view of Witkowski (6430626) in further view of Vaidya (6279113).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld (5592622) in view of Chilton (6418488) in further view of Vaidya (6279113) in further view of Witkowski (6430626).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ebrahim (5887134) in view of Gulledge (5644623) in further view of Witkowski (6430626) in further view of Vaidya (6279113).

Claims 21 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebrahim (5887134) in view of Gulledge (5644623) in further view of Witkowski (6430626) in further view of Isfeld (5592622).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ebrahim (5887134) in view of Gulledge (5644623) in further view of Witkowski (6430626) in further view of Cotton et al. (5623489) (hereinafter Cotton).

Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebrahim (5887134) in view of Gulledge (5644623) in further view of in further view of Witkowski (6430626) in further view of Vaidya (6279113) in further view of Cotton (6430626).

Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld (5592622) in view of Chilton (6418488) in further view of Witkowski (6430626) in further view of Adler et al. (6552826) (hereinafter Adler).

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,592,622	Isfeld et al.	1-1997
6,418,488	Chilton et al.	7-2002
6,430,626	Witkowski et al.	8-2002
5,887,134	Ebrahim	3-1999
5,644,623	Gulledge	7-1997
6,275,505	O'Loughlin et al.	8-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "status data of multiple media access devices is stored in a single one of the at least one register of the interface" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3, 6 – 8, 10, 14, 21 – 23, 31, 39 and 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3, 6 – 8, 10, 14, 21 – 23 and 31 recites the limitation "the device". There is insufficient antecedent basis for this limitation in the claim.

Claim 39 recites the limitation of, "the at least one media access device comprises multiple media access devices". One interpretation of this limitation is "one media access device comprises multiple media access devices". Examiner requests the Applicant to explain how one device can turn into multiple devices or "duplicate" itself into multiple devices. Applicant is also asked to point to sections of the specification to support their explanation.

Claim 40 recites the limitation of, "the status data of multiple media access devices is stored in a single one of the at least one register of the interface". It is unclear as to how the Applicant wants the status data stored in the register, (i.e., one copy in one register, multiple copies in one register, one copy in multiple registers, etc.). Applicant is asked to explain this limitation while pointing to sections of the specification to support their limitation and explanation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 5, 7 – 11, 13, 14, 16, 17 and 33 – 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld et al. U.S. Patent No. 5592622 (hereinafter Isfeld) in view of Chilton et al. U.S. Patent No. 6418488 (hereinafter Chilton) in further view of Witkowski et al. (6430626) (hereinafter Witkowski).

Referencing claim 1, as closely interpreted by the Examiner, Isfeld teaches a processor, comprising:

media access device, (e.g. col. 7, lines 10 – 48, *"MAC device"*);

one or more processing engines to schedule transfers of packets data between the processor and the devices, (e.g. col. 8, line 50 – col. 9, line 15);

a push engine to perform unsolicited transfers of the status data to the processing engines in response to the module collecting new status data, (e.g. col. 8, lines 11 – 34 & col. 10, line 12 – col. 11, line 67 & col. 23, line 45 – col. 24, line 15). Isfeld does not specifically teach a module configured to collect status data from devices connected to a bus, the status data indicating readiness of the devices to participate in data transfers,

the status data comprising data indicating whether one of the media access devices has received packet data. Chilton teaches a module configured to collect status data from devices

connected to a bus, the status data indicating readiness of the devices to participate in data transfers, (e.g. col. 25, lines 18 – 59). It would have been obvious to one skilled in the art at the time the invention was made to combine Chilton with Isfeld because if one device does not receive a type of status data (i.e. acknowledgement signal), transfer errors could accumulate in the system. Witkowski teaches the status data comprising data indicating whether one of the media access devices has received packet data, (e.g. col. 20, line 45 – col. 21, line 28, *"The RX MCB interface 530 asserts a signal RX_PKT_AVAIL* to the MCB 404 when packet data is in one of the RX BUFs 520, 522..."*). It would have been obvious to of ordinary skill in the art at the time the invention was made to combine Witkowski with Isfeld and Chilton because by sending a status data indicating that a media access control device has received a packet allows the system to ready the packet for processing and/or transmission to other devices in the system.

As per claim 2, Isfeld teaches wherein the processing engine comprises:
one or more input transfer registers to receive the unsolicited transfers of status data for use to schedule the transfers of packets data, (e.g. col. 23, line 45 – col. 24, line 15).

As per claim 3, Isfeld teaches wherein the processing engine uses a portion of received new status data to schedule retrievals of packets data from the devices, (e.g. col. 10, line 46 – col. 11, line 46).

As per claim 4, Isfeld teaches wherein the processing engine uses a portion of the received status data to schedule transmissions of packets data, (e.g. col. 10, line 46 – col. 11, line 46).

As per claim 5, Isfeld teaches wherein the processing engine uses a portion of the received status data to determine whether schedule transmissions of packets data have been completed, (e.g. col. 18, lines 23 – 61).

As per claim 7, Isfeld teaches wherein a portion of the status data are flags indicative of whether associated devices have packets data to transmit, (e.g. col. 36, line 50 – col. 37, line 25).

As per claim 8, Isfeld and Chilton do not specifically teach wherein a portion of the status data includes flags indicative of whether associated devices have space to receive packets data. Witkowski teaches wherein a portion of the status data includes flags indicative of whether associated devices have space to receive data packets, (e.g. col. 11, line 52 – col. 12, line 23, *"...status bits on a respective one of the BUF_AVAIL[5:0]* signals to indicate whether each of its corresponding transmit FIFOs 304 for the respective port has enough empty space available to store data."*). It would have been obvious to one skilled in the art at the time the invention was made to combine Witkowski with the combine system of Isfeld and Chilton because this could prevent incoming status data to be written over the status data that already exists in the space provided.

As per claim 14, Isfeld and Chilton do not specifically teach wherein collecting further comprises:

polling the devices for ready status data on the availability of ports thereon; and

receiving ready status data associated with individual ones of the devices in response to the polling. Witkowski teaches wherein collecting further comprises:

polling the devices for ready status data on the availability of ports thereon, (e.g. col. 17, lines 33 – 58); and

receiving ready status data associated with individual ones of the devices in response to the polling, (e.g. col. 17, lines 33 – 58). It would have been obvious to one skilled in the art at the time the invention was made to combine Witkowski with the combine system of Isfeld and Chilton because if there are all ports are in use at the time the system cannot receive any data. Therefore, this would prevent bottlenecking.

As per claim 16, Isfeld and Chilton do not specifically teach wherein the transferred portion of the information includes flags that indicate whether associated ports of the devices have one of space to receive data packets and data packets ready to transmit over the bus. Witkowski teaches wherein the transferred portion of the information includes flags that indicate whether associated ports of the devices have one of space to receive data packets and data packets ready to transmit over the bus, (e.g. col. 22, line 36 – col. 23, line 14 & col. 23, line 48 – col. 24, line 23). It would have been obvious to one skilled in the art at the time the invention was made to combine Witkowski with the combine system of Isfeld and Chilton

because if there are all ports are in use at the time the system cannot receive any data. Therefore, this would prevent bottlenecking and packet collision.

As per claim 34, as closely interpreted by the Examiner, Isfeld teaches the at least one media access control device comprises an Ethernet media access control device, (e.g. col. 7, lines 29 – 60).

As per claim 37, Isfeld teaches at least one memory controller to a Synchronous Dynamic Random Access Memory (SDRAM), (e.g. col. 11, line 57 – col. 12, line 20).

As per claim 38, Isfeld teaches a buffer to store packet data received by the at least one media access device, (e.g., col. 8, line 50 – col. 9, line 15).

As per claim 39, as closely interpreted by the Examiner, Isfeld teaches the at least one media access device comprises multiple media access devices, (e.g., col. 7, lines 28 – 60).

As per claim 40, as closely interpreted by the Examiner, Isfeld teaches the status data of multiple media access devices is stored in a single one of the at least one register of the interface, (e.g., col. 27, lines 6 – 12).

Claims 9, 10, 11, 13, 17, 33, 35, and 36 are rejected for similar reasons as stated above.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld (5592622) in view of Chilton (6418488) in further view of Witkowski (6430626) in further view of Williams et al. (6144669) (hereinafter Williams).

As per claim 6, Isfeld, Chilton and Witkowski do not specifically teach wherein the module is configured to poll the devices for the status data over a second bus. Williams teaches wherein the module is configured to poll the devices for the status data over a second bus, (e.g. col. 5, lines 29 – 59 & col. 11, lines 4 – 38). It would have been obvious to one skilled in the art at the time the invention was made to combine Williams with the combine system of Isfeld, Chilton and Witkowski because having the status data over a second bus could speed up a process and prevent latency and packet collision.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld (5592622) in view of Chilton (6418488) in further view of Witkowski (6430626) in further view of Vaidya (6279113).

As per claim 12, Isfeld, Chilton and Witkowski do not specifically teach wherein determining includes comparing a value of a time stamp transferred with the information to a previous value of the time stamp. Vaidya teaches wherein determining includes comparing a value of a time stamp transferred with the information to a previous value of the time stamp, (e.g. col. 12, lines 11 – 22). It would have been obvious to one skilled in the art at the time the invention was made to combine Vaidya with the combine system of Isfeld, Chilton and

Witkowski because if one desired to save an updated status data the comparisons of the time stamp would allow for this function to take place. Therefore, leading to possible error prevention from the system accessing obsolete information.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld (5592622) in view of Chilton (6418488) in further view of Vaidya (6279113) in further view of Witkowski (6430626).

As per claim 15, Isfeld, Chilton and Vaidya do not specifically teach wherein collecting further comprises:

writing the received ready status data to a status register;

scheduling transfers of data packets over the bus in response to the transferred portion of the ready status data. Witkowski teaches wherein collecting further comprises:

writing the received ready status data to a status register, (e.g. col. 34, line 45 – col. 35, line 25);

scheduling transfers of data packets over the bus in response to the transferred portion of the ready status data, (e.g. col. 17, lines 33 – 58). It would have been obvious to one skilled in the art at the time the invention was made to combine Witkowski with the combine system of Isfeld, Chilton and Vaidya because it would be more efficient to write received ready status data to a status register and if one wanted to transfer a type of response to the status data (i.e. acknowledgement) it would be more efficient for to transfer a portion of the status data for error checking.

Claims 18, 19, 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebrahim (5887134) in view of Gulledge (5644623) in further view of Witkowski (6430626).

Referencing claim 18, as closely interpreted by the Examiner, Ebrahim teaches a router, comprising:

a bus, (e.g. col. 1, lines 36 – 48); and

a parallel processor coupled to the bus and comprising, (e.g. col. 1, lines 36 – 48):

a plurality of processing engines to process data transfers with a plurality of devices connected to the bus, (e.g. col. 15, lines 19 – 37);

the status data indicating readiness of the devices to participate in data transfers, (e.g. col. 5, line 65 – col. 6, line 14 & col. 11, line 36 – col. 12, line 17). Ebrahim does not specifically teach an interface connected to collect ready status data from the media access devices and to automatically transfer ready status data the processing engines in response to the ready status data being collected, the ready status data comprising data indicating whether a one of the media access control devices has received packet data, and media access device.

Gulledge teaches an interface connected to collect status data from the devices and to automatically transfer status data the processing engines in response to the status data being collected, (e.g. col. 14, lines 44 – 63). It would have been obvious to one skilled in the art at the time the invention was made to combine Gulledge with Ebrahim because it would be faster if the status was automatically transfer once the status data was collected. This could

aid in the shortening of latency. Gulledge does not specifically teach the ready status data comprising data indicating whether a one of the media access control devices has received packet data.

Witkowski teaches media access device, (e.g. col. 50, lines 1 – 23), and

the ready status data comprising data indicating whether a one of the media access control devices has received packet data, (e.g. col. 20, line 45 – col. 21, line 28, *"The RX MCB interface 530 asserts a signal RX_PKT_AVAIL* to the MCB 404 when packet data is in one of the RX BUFs 520, 522..."*). It would have been obvious to one skilled in the art at the time the invention was made to combine Witkowski with the combine system of Ebrahim and Gulledge because of similar reasons as stated above in claim 1.

As per claim 19, Ebrahim and Gulledge do not specifically teach wherein the ready status data indicates the readiness of individual ones of the devices to one of receive a data packet from and transmit a data packet to the parallel processor. Witkowski teaches wherein the ready status data indicates the readiness of individual ones of the devices to one of receive a data packet from and transmit a data packet to the parallel processor, (e.g. col. 20, line 45 – col. 21, line 28, *"The RX MCB interface 530 asserts a signal RX_PKT_AVAIL* to the MCB 404 when packet data is in one of the RX BUFs 520, 522..."*). It would have been obvious to one skilled in the art at the time the invention was made to combine Ebrahim and Gulledge with Witkowski because of similar reasons stated above and furthermore, it could lead to errors if the devices are not ready to transmit or receive data. This could prevent bottlenecking and packet collision.

As per claim 22, Ebrahim and Gulledge disclose all that is described above but do not specifically teach a ready bus capable of transferring ready status data from the devices to the interface. Witkowski teaches a ready bus capable of transferring ready status data from the devices to the interface, (e.g. col. 20, line 45 – col. 21, line 28, *"The RX MCB interface 530 asserts a signal RX_PKT_AVAIL* to the MCB 404 when packet data is in one of the RX BUFs 520, 522..."*). It would have been obvious to one skilled in the art at the time the invention was made to combine Witkowski with the combine system of Ebrahim and Gulledge because an error could occur if the data on the bus is not ready to transfer from the device to the interface.

As per claim 26, Ebrahim teaches wherein the devices are capable of transmitting data packets between the bus and external networks, (e.g. col. 3, lines 7 – 28).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ebrahim (5887134) in view of Gulledge (5644623) in further view of Witkowski (6430626) in further view of Vaidya (6279113).

As per claim 20, Ebrahim, Gulledge and Witkowski disclose all that is described above but do not specifically teach wherein the ready status data includes a time stamp indicative of a staleness of the ready status data. Vaidya teaches wherein the ready status data includes a time stamp indicative of a staleness of the ready status data, (e.g. col. 12, lines 11 – 22). It

would have been obvious to one skilled in the art at the time the invention was made to combine Vaidya with the combine system of Ebrahim, Gulledge and Witkowski because if one desired to save an updated status data the comparisons of the time stamp would allow for this function to take place. Therefore, leading to possible error prevention from the system accessing obsolete information.

Claims 21 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebrahim (5887134) in view of Gulledge (5644623) in further view of Witkowski (6430626) in further view of Isfeld (5592622).

As per claim 21, Ebrahim, Gulledge and Witkowski disclose all that is described above but do not specifically teach wherein a portion of the ready status data includes information to enable the processing engines to identify which scheduled data transfers to the devices have been completed. Isfeld teaches wherein a portion of the ready status data includes information to enable the processing engines to identify which scheduled data transfers to the devices have been completed, (e.g. col. 2, line 65 – col. 3, line 23). It would have been obvious to one skilled in the art at the time the invention was made to combine Isfeld with the combine system of Ebrahim, Gulledge and Witkowski because if the device does not know that the data transfer has been completed it could continually send the same data not knowing the status of the completely sent data, (i.e. acknowledgement signal). This would be used for error prevention.

As per claim 27, Ebrahim, Gulledge and Witkowski disclose all that is described above but do not specifically teach wherein the interface transfers the collected status data without being solicited to transfer the data by the processing engines. Isfeld teaches wherein the interface transfers the collected status data without being solicited to transfer the data by the processing engines, (e.g. col. 23, line 45 – col. 24, line 15). It would have been obvious to one skilled in the art at the time the invention was made to combine Isfeld with the combine system of Ebrahim, Gulledge and Witkowski because it would be more efficient if data that was more important was to be transferred first. Furthermore, it would be faster if the data that was transmitted were unsolicited because the data would not use up time in unnecessary processing.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ebrahim (5887134) in view of Gulledge (5644623) in further view of Witkowski (6430626) in further view of Cotton et al. (5623489) (hereinafter Cotton).

As per claim 23, Ebrahim, Gulledge and Witkowski discloses all that is described above but do not specifically teach wherein the ready status data indicates whether associated ports of the devices are ready to perform one of a transmission of a data packet to the bus and a receive of a data packet from the bus. Cotton teaches wherein the ready status data indicates whether associated ports of the devices are ready to perform one of a transmission of a data packet to the bus and a receive of a data packet from the bus, (e.g. col. 9, lines 8 – 35). It would have been obvious to one skilled in the art at the time the invention was made to

combine Cotton with the combine system of Ebrahim, Gulledge and Witkowski because if there are all ports are in use at the time the system cannot receive any data. Therefore, this would prevent bottlenecking and packet collision.

Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebrahim (5887134) in view of Gulledge (5644623) in further view of in further view of Witkowski (6430626) in further view of Vaidya (6279113) in further view of Cotton (6430626).

As per claim 24, Ebrahim, Gulledge, Witkowski and Vaidya discloses all that is described above but do not specifically teach wherein each processing engine comprises at least one input transfer register; and

the interface is configured to write ready status data to one of the input transfer registers assigned to a to scheduler thread. Cotton teaches wherein each processing engine comprises at least one input transfer register, (e.g. col. 10, lines 15 – 44); and

the interface is configured to write ready status data to one of the input transfer registers assigned to a to scheduler thread, (e.g. col. 10, lines 15 – 44). It would have been obvious to one skilled in the art at the time the invention was made to combine Cotton with the combine system of Ebrahim, Gulledge, Witkowski and Vaidya because it would be more efficient to write received ready status data to a status register and if one wanted to transfer a type of response to the status data (i.e. acknowledgement) it would be more efficient for to transfer a portion of the status data for error checking.

As per claim 25, Ebrahim, Gulledge, Witkowski and Vaidya discloses all that is described above but do not specifically teach wherein the interface is configured to protect one of the input transfer registers from being read by the processing engines during the transferring of ready status data thereto. Cotton teaches wherein the interface is configured to protect one of the input transfer registers from being read by the processing engines during the transferring of ready status data thereto, (e.g. col. 16, lines 30 – 59). It would have been obvious to one skilled in the art at the time the invention was made to combine Cotton with the combine system of Ebrahim, Gulledge, Witkowski and Vaidya because this would be a more efficient way to protect status data that does not need to be processed by the processing engines. Therefore, this could help prevent errors from occurring in the system.

Claims 28 – 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Loughlin et al. (6275505) (hereinafter O'Loughlin) in view of Witkowski (6430626) in further view of Isfeld (5592622).

As per claim 28, O'Loughlin teaches an article comprising a computer-readable medium which stores executable instructions for transferring data packets over a bus, the instructions causing a processor to, (e.g. col. 10, lines 20 – 33):

But, O'Loughlin does not specifically teach collect information on readiness of devices connected to the bus to one of transmit and receive data packets; and

transfer a portion of the collected information to a processing engine configured to schedule data transfers, the transferring being unsolicited by the processing engine. Witkowski teaches information on readiness of devices, (e.g. col. 20, line 45 – col. 21, line 28, *"The RX MCB interface 530 asserts a signal RX_PKT_AVAIL* to the MCB 404 when packet data is in one of the RX BUFs 520, 522..."*), and the devices connected to the bus to one of transmit and receive data packets, (e.g. col. 23, lines 14 – 47 & col. 24, lines 13 – 43). It would have been obvious to one skilled in the art at the time the invention was made to combine Witkowski with O'Loughlin because it would be more efficient to transmit and receive data when the devices is ready. If the device is not ready it could receive or transmit incorrect data leading to errors. Isfeld teaches transfer a portion of the collected information to a processing engine configured to schedule data transfers, the transferring being unsolicited by the processing engine, (e.g. col. 23, line 45 – col. 24, line 15). It would have been obvious to one skilled in the art at the time the invention was made to combine Isfeld with the combine system of O'Loughlin and Witkowski because it would be more efficient if data that was more important was to be transferred first. Furthermore, it would be faster if the data that was transmitted were unsolicited because the data would not use up time in unnecessary processing.

As per claim 29, O'Loughlin and Isfeld discloses all that is described above but do not specifically teach the instructions further causing the processor to:
schedule data transfers with a portion of the devices based on the transferred portion of the collected information. Witkowski teaches the instructions further causing the processor to:

schedule data transfers with a portion of the devices based on the transferred portion of the collected information, (e.g. col. 17, lines 33 – 58 & col. 34, line 45 – col. 35, line 25). It would have been obvious to one skilled in the art at the time the invention was made to combine Witkowski with the combine system of O'Loughlin and Isfeld because of similar reasons stated above.

As per claim 30, O'Loughlin and Isfeld discloses all that is described above but do not specifically teach the instructions further causing the processor to:
determine whether the transferred information is at least partly new; and
wherein instructions causing the processor to schedule are performed in response to determining that the transferred information being at least partly new. Witkowski teaches the instructions further causing the processor to:
determine whether the transferred information is at least partly new, (e.g. col. 17, line 33 – col. 18, line 36); and

wherein instructions causing the processor to schedule are performed in response to determining that the transferred information being at least partly new, (e.g. col. 17, line 33 – col. 18, line 36).). It would have been obvious to one skilled in the art at the time the invention was made to combine Witkowski with the combine system of O'Loughlin and Isfeld because it would be more efficient for the user to determine the difference between partly new information and old information. This could lead to knowing when to update information in the system.

Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld (5592622) in view of Chilton (6418488) in further view of Witkowski (6430626) in further view of Adler et al. (6552826) (hereinafter Adler).

As per claim 31, Isfeld and Witkowski teaches all that is discussed above but does not specifically teach the processing engines schedule the transfer of data packets independently of the module collecting status data from the devices. Adler teaches the processing engines schedule the transfer of data packets independently of the module collecting status data from the devices, (e.g. col. 18, line 18 – col. 20, line 42). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Adler with the combines system of Isfeld and Witkowski for it is more efficient in terms of faster transmission with low latency from a small overhead that is utilized in a connectionless network system. This function is utilize in User Datagram Protocol, (UDP), having small overhead and does not use system acknowledgements in a network as opposed to a network protocol that has more overhead in the header that would slow down the transmission of packets.

As per claim 32, Isfeld and Witkowski teaches all that is discussed above but does not specifically teach the processing engines schedule the transfer of data packets from a device to the bus independently of the readiness of other devices to receive the data, and schedule the transfer of data from the bus to a device independently of the readiness other devices to send the data. Adler teaches the processing engines schedule the transfer of data packets from a device to the bus independently of the readiness of other devices to receive the data, and schedule the transfer of data from the bus to a device independently of the readiness other devices to send the data, (e.g. col. 18, line 18 – col. 20, line 42). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Adler with the combines system of Isfeld and Witkowski for it is more efficient in terms of faster transmission with low latency from a small overhead that is utilized in a connectionless network system. This function is utilize in User Datagram Protocol, (UDP), having small overhead and does not use system acknowledgements in a network as opposed to a network protocol that has more overhead in the header that would slow down the transmission of packets.

Response to Arguments

Applicant's arguments filed 12/02/2004 have been fully considered but they are not persuasive.

In the Remarks, Applicant argues in substance that "the device" has antecedent basis provided by the "media access devices" recited in the corresponding independent claims.

As to part 1, Examiner would like to point out that "the device" and "the media access device" can be interpreted as two separate devices. If it is the Applicant's desire to have "the device" mean "the media access device" then the Applicant must amend as such. Therefore, rejection still stands.

In the Remarks, Applicant argues in substance that Isfeld does not describe a "transfer of status data indicating readiness of the media access devices to participate in data transfers" as recited by claim 1. Nor does the Examiner provide a suggestion as to why the status data of the IOP MACs should be transmitted to another IOP, especially in view of Isfeld's stated goal of minimizing bus traffic.

As to part 2, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Furthermore, Chilton is utilized to teach the status data indicating readiness of the devices to participate in data transfers as disclosed above.

In the Remarks, Applicant's argument towards claim 18 is not clear. Applicant states numerous cited areas of the prior art, (Ebrahim and Gulledge), but does not state which part of the claim language they mean to argue. What is stated is even if such a combination was constructed it would not provide a router that includes an interface to "transfer ready status data to the processing engines in response to the status data being collected, the ready status data indicating readiness of the devices to participate in data transfers, the ready status data comprising data indicating whether a one of the media access devices has received packet data".

As to part 3, since Applicant does not state which part of the claim language is being argued specifically, the Examiner will attempt to state what is in the prior art as it applies to the limitation described above. Examiner would like to draw the Applicant's attention to Ebrahim, which teaches a type of Acknowledgement as cited above in columns 5 – 7 and 11 – 13. It is well known in the art that an Acknowledgement is utilized to indicate the status if the device and whether or not it has received a transmission properly and if an Acknowledgement is received then the device is ready for the next piece of data to be transferred. This is one example of how the prior art reads on the claim language. Applicant is asked to be more specific as to which limitations they are addressing in the Remarks to better aid in the explanation of the prior art and how it applies to the claim language.

(10) Response to Argument

In the arguments, Appellant argues in substance that claim 1 recites a push engine to perform an unsolicited transfer of status data to a processing engine where the status data indicates whether a one of the media access device has received packet data, and neither Isfeld, Chilton nor Witkowski describe, suggest, or provide any motivation to modify Isfeld in a way to push such data.

As to the first argument, in the independent claims, it is claimed that "a push engine to perform unsolicited transfers of the status data to the processing engines in response to the module collecting new status data", or similarly written processing engine, which is not taught by the Appellant's specification nor is the invention enabled to do such. As stated in the Appellant's specification, "the push engine 62 regularly sends the ready status data over the S bus 39 to scheduler threads located in the processing engines 22a – 22f **in response to commands from logic internal to the FBI 38**", (page 6, lines 14 – 18). This would mean that the push engine does not perform unsolicited transfers. In fact, this contradicts what the Appellant claims and the push engine actually needs a command from a source to transfer the status information. Further support for this can be found on page 7, lines 19 – 25, *"Components of the FBI 38 can also send commands to the command queues 66, 68 of push and pull engines 62, 64. For example, the ready bus controller 50 can send a command to the queue 66 that causes the push engine 62 to transfer ready status data from the status register 54 to the processing engines 22a – 22f,"* page 8, lines 21 – 25, *"The push engine 62 uses command information from the command queue 66 and/or pull engine 64 to transmit the results back over the S bus 39 to input transfer registers 78a – 78f of the requesting or destination processing engines 22a – 22f."* These sections further prove that the Appellant's invention is not enable to have the push engine perform an unsolicited transfer for there needs to be a command sent to said push engine to let it know when to transmit the status information. Furthermore, the only teaching of an unsolicited transfer is the FBI 38 as a whole, and not its individual parts such as the push engine. This is taught on page 13, lines 16, *"in response to completing the collection cycle, the FBI 38 performs an unsolicited*

transfer 104 of the newly collected ready status data to the input transfer registers 78a – 78f assigned to the scheduler threads. In an unsolicited data transfer, the destination device for the transfer does not request the transfer." Though, even this section from the Appellant's specification seems to contradict the above sited areas of page 8, lines 21 – 25, "*...the S bus 39 to input transfer registers 78a – 78f of the requesting or destination processing engines 22a – 22f.*" All other areas of the specification state that the FBI 38, as a whole and not its individual parts, appears to transfer information unsolicited. As stated above there is no teachings of the push engine, by itself, performing an unsolicited transfer nor is there any discloser as to how the push engine could do an unsolicited transfer. All that is stated about the push engine is that a command is used to have the push engine transfer status data to the processing engines.

Therefore, it could be interpreted that the FBI could be considered the push engine or the processing engine as claimed and it is clear to the above cited sections that both use a request from the other processing engines 22a – 22f and it is the FBI that supposedly utilized an unsolicited transfer of information even though the specification does not state how this could be done and further goes to state that a request is sent to the FBI.

What appears to be the Appellant's claimed invention, in view of the Appellant's specification, the push engine sends status information to a processor. It is very apparent in the prior art of Isfeld teaches a push engine, or otherwise interpreted as storage memory and/or processor, that sends status information to another processor, col. 27, lines 44 et seq., *"get_free_buffs 500, Maintain status of the double buffered free list buffer FLB... Buffers and status are moved into the rev and hrev list buffers (RLB and HLB) by the flush to ibus function... Reads ICB tags and performs ICB flush to IBUS."* It is clear that the moving of status information from CSB to the RLB and HLB from a command "flush", which could be substantially similar to the a transfer command that is received at the push engine. Therefore, in view of the above newly added 112 rejection and interpretation as to what Appellant truly teaches in the specification, Isfeld, in view of Chilton and Witkowski teach the push engine's transfer of status information.

Claims 9 and 28, for at least the same reasons stated above, are also taught by the prior art.

In the arguments, Appellant argues in substance that the limitation of "multiple multi-threaded engines" is not taught by the prior art.

As to the second argument, Appellant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Furthermore, it is not specifically stated in the Appellant's specification what "multiple multi-threaded engines" could be and is therefore open to what

is accepted as a standard definition of a multi-threaded engine could be. It is well known in the art that a multi-threaded engine is nothing more than processors and as very apparent, as described above, the prior art teaches a processing engine. Furthermore, the above interpretation and the specification teachings, in the first response to the remarks, further prove the inconsistency and broadness of the claim language.

In the arguments, Appellant argues in substance that it is unclear as to what the Examiner deems as the recited "bus" and Ebrahim, Gulledge and Chilton do not teach the limitations of claim 18 nor have the motivation to combine in order to teach such a combination.

As to the third argument, since the Appellant does not give specifics on what a bus could be the interpretation could be many. For example, the bus could be element 104 in figure one or 110 in figure 2. In one interpretation that can be draw from the prior art the bus could be the Node internal interconnect (II) in figure 5a.

The motivation for the combination of Ebrahim and Gulledge can be further understood as when information is gathered and transmitted automatically in response to a condition it would be a faster transmission of information because one does not have to request information from a device or memory in order to receive said information. It would be understood that when information is sent using a trigger type response it would cut out any need for a request. It is also noted that utilizing information about measurements as found in Gulledge could be used to find a state or status of a device or portion of a device and its work load or capability, example, enough memory to store information or if transmission or buffer

lines are full and nothing can be transferred. Furthermore, the information from Gulledge does not have to "replace" what is taught by Witkowski but can be added to the transmission to proved a wider spectrum of information given to a device.

Witkowski teaches the ready status data comprising data indicating whether a one of the media access control devices has received packet data, col. 17, lines 39 et seq., *"The RECEIVE LIST 509 includes a plurality of register values indicative of relative receive status and priority of each port. Likewise, the TRANSMIT LIST 510 includes a plurality of register values indicative of relative transmit status and priority of each port."* This along with what was previously stated in the last office action clearly teaches the elements of claim 18. Furthermore, the motivation that was used in claim 1 with Witkowski could be applied herein out for it is the same rational that come from Witkowski. Furthermore, one would be motivated to combine these references because to assign a relative transmit priority to each port when packet data is available for transmission by that port to an external network device and the port has room to receive data form transmission gives the system knowledge on which ports have higher priority and needs to be sent before other port information as is well known in the art of priority setting and transmitting, col. 17, lines 39 et seq. Furthermore, the above interpretation and the specification teachings, in the first response to the remarks, further prove the inconsistency and broadness of the claim language.

In the arguments, Appellant argues in substance that the Examiner rejected each of claims 3, 6-8, 10, 14, 21-23, and 31 as lacking antecedent bases for "the device". None of these claims recite the term "the device", singular, as indicated by the Examiner. These claims however, do recite "devices", plural. Antecedent basis is provided by the "media access devices" of claims 1 and 9 in the corresponding independent claims from which these claims depend.

As to the fourth argument, the Appellant's claims state media access devices. It is unclear if the Appellant is attempting to bring in another, separate and distinct, "device" as stated in claims mentioned above. Therefore it can be interpreted that there are two "sets" of devices, one being "media access devices" and the other being just "devices". In the Appellant's amendment after final it was clear that it was only mean to teach "media access devices" but now there is only one set of devices that are present, not two as could previously be interpreted.

In the arguments, Appellant argues in substance that the Examiner rejected claim 39 based on the recitation of "the at least one media access device comprises multiple media access devices". Claim 39 depends on independent claim 33 which recites "at least one media access device". In other words, according to claim 33, the number of media access devices is at least one, but may be more. Claim 39 specifies that the number of media access devices is more than one. Applicants believe this to be clear and appropriate use of terminology and do not agree that claim 39 fails to distinctly claim subject matter.

As to the fifth argument, it still seem that the way the Appellant has worded the claim appears to be contradictory in the one interpretation, "How can one be multiple?" It is agreed that at least one could be more than one but it still can be one. If the Appellant amended to state at least 2, it would not contradict the one interpretation because now there would have to be two which falls under multiple.

In the arguments, Appellant argues in substance that the Examiner rejected claim 40 based on the recitation of "the status data of multiple media access devices is stored in a single one of the at least one register of the interface". In particular the Examiner stated "[i]t is unclear as to how the Applicant wants the status data stored in the register, (i.e., one copy in one register, multiple copies in one register, one copy in multiple registers, etc.)". Applicants do not understand the Examiner's reference to "copies" and assert that claim 40 distinctly claims subject matter.

As to the final argument, Examiner means the status data of multiple media access devices would mean that there are different status data and that "at least one register of the interface" would mean that all the different status data could be stored in one register, or each multiple media access device would have their own register to store status data in, etc. Furthermore, it is unclear as to what is mean by "a single one of the at least one register". Would that mean it is only one register or there is only a single status data stored in one register, multiple registers, etc. Appellant still has not clarified what is meant by the above limitation nor has given examples or sections of the specification to support this limitation and clarify its meaning.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

DE

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